REMARKS:

By the above amendment, Applicants have rewritten claims 1, 2, 3, 6, 7, 13 and 17 to define the invention more particularly and distinctly, so as to define the invention patentability over the prior art. Claims 21-29 are newly written.

The Rejection of Claim 1 on Horstmann Overcome

In the last Office Action, claim 1 was rejected as being unpatentable over Horstmann et al (hereinafter Horstmann) U.S. Patent 6,779,022. Applicants request reconsideration of this rejection, as now applicable to claim 1 as amended.

The References and Differences of the Present Invention Thereover

Prior to discussing the claims, applicants will first discuss the references and the general novelty of the present invention and its unobviousness over the references.

Horstmann evaluates the priority of messages, applying predetermined rules to each message for selecting an appropriate processing method and message delivery technique for that specific message considered in isolation. Horstmann's "priority" reflects a prediction of the recipient's preference regarding how an individual message should be processed. Horstmann never compares the relative priority of messages, and Horstmann's procedure does not enable the allocation of limited network resources among messages that recipients want delivered. Applicants evaluate the relative priority of messages, and transmit messages in order of relative priority until a limited resource within the messaging system is exhausted.

Horstmann considers the possibility that a recipient's pocketbook may be limited, and that recipients might use predetermined rules (including an evaluation of message priority) to decline delivery of certain messages or message elements. Even here, the product of Horstmann's

priority evaluation is a boolean pass/block determination, indicating whether delivery of a message to a particular user terminal is desired, based on evaluation of that one single message. There is no step of comparing the relative priority of messages awaiting delivery, and no allocation of a limited network resource among relatively prioritized messages awaiting delivery.

More generally, Horstmann describes no limited resource within a messaging system that might interfere with its capacity to deliver all messages in a timely manner, if users so elected. A user might be temporarily disconnected from the network and unable to receive messages, but in this case, all pending messages to that user may be delivered upon the next connection opportunity. In Horstmann, all messages are delivered when, according to predetermined rules established by message recipients, they should be delivered (provided that a communications path exists). For this reason, there is no motivation under Horstmann to compare the relative priority of messages awaiting delivery, that is, messages that the messaging system has determined are supposed to be delivered.

With regard to transmitting messages awaiting delivery between messaging nodes in order of message priority, until a limited network resource is exhausted, applicants perform these steps for the first time. Until now, no one has ever thought about allocating resources in this way and suggested same, much less actually did it. Traditional networks operate as a first-in first-out queue, without resequencing based upon the content of the data awaiting transmittal. Network restrictions, such as on the size of messages, produce a boolean pass/block determination for each message evaluated individually, without comparing the relative priority of messages awaiting delivery or affecting the relative transmission order of these messages.

Claim 1

The applicants' invention, as defined by claim 1 as currently amended, comprises much more than merely evaluating the priority of a message. Specifically, clauses (b), (c) and (d) of claim 1 clearly distinguish the present invention from Horstmann, since these clauses recite:

b) identifying selected messages awaiting delivery with a highest said prioritization value at said sending node;

c) transmitting said selected messages to said receiving node, and

d) repeating steps (b) and (c) until said limited resource within said data network is exhausted.

Horstmann does not show these elements because his "priority" evaluation is solely part of the process for determining whether the messaging system is supposed to deliver a particular message to a particular destination. The relative priority of messages is not meaningful to Horstmann. Indeed, once Horstmann determines that a message should be delivered (e.g. a message is "awaiting delivery", a precondition for consideration in step (b) of claim 1), the "priority" of such a message becomes irrelevant. The notion of comparing the relative priority of messages awaiting delivery is foreign to Horstmann.

Further, Horstmann does not anticipate the concept of a limited resource such that a messaging system might be able to transmit some, but not all, messages awaiting delivery to a particular receiving node prior to the exhaustion of that resource.

By comparing the relative priority of messages awaiting delivery, the applicants' system causes higher priority messages to be selectively transmitted before lower priority messages during a communications session that may terminate due to exhaustion of a limited resource before all messages awaiting delivery have been sent, a feature that is missing in conventional data networks such as that of Horstmann.

Strictly for clarity, claim 1 has been amended to more clearly define that prioritization values form a relative ranking of higher and lower priority among messages awaiting transmission to a particular receiving node, and that messages are transmitted in declining order of priority.

Dependent Claims

Dependent claims 2-26 incorporate all the subject matter of claim 1 and add additional subject matter which makes them a fortiori and independently patentable over these references.

Claim 2

As presented in paragraphs 80-82 of the present application, and illustrated in Figure 1, a typical embodiment of the present invention may include "messaging nodes" that have intermittent communications in all directions: over communications link 72 with a portable messaging unit, and also over communications link 70 with the wider network. The Examiner's rejection of claim 2 cited Horstmann describing an application where laptops have wireless network connections through access points. Using the language of such wireless networks, "messaging nodes" in the present invention are comparable to "access points" that themselves lack regular network communications. In an ordinary network, such a circumstance would render the access point unusable for collecting messages. Claim 2 is directed to buffering messages at one (or more) access point(s) before the user attempts to download those messages, so that the messages will be available for download on request -- even if the access point itself has no connection to the broader network at the time when the user attempts to download messages. As presented in paragraph 101 of the present application, this is the meaning of "proactively buffering" messages.

In light of the Examiner's comments, claim 2 has been amended strictly for clarity in two respects. First, claim 2 was amended to more clearly define that the proactive buffering stores messages at a messaging node (equivalent to an access point) from which the user may subsequently download messages to a separate portable messaging unit (equivalent to a laptop that may communicate with an access point). Second, claim 2 was amended to more clearly define that the communications link between the sending and receiving nodes is intermittent (note that this is not the link between the receiving node and the portable messaging unit). Using the wireless communications analogy, what claim 2 defines as "intermittent" would be the link

between the access point and the broader network.

Claim 2, as amended, in addition to all subject matter of claim 1, in part recites "wherein the communications link between said sending node and said receiving node is intermittent, further comprising the step of storing said selected messages at said receiving node prior to a user request to download selected messages via said receiving node to a separate portable messaging unit, thereby proactively buffering selected messages at said receiving node." Horstmann does not do this. Horstmann may store messages on a laptop before they are read by the user, but he does not store messages at an access point before the laptop seeks to download new messages from the messaging system via that access point. Claim 2 further provides that "the communications link between said sending node and said and receiving node is intermittent", but Horstmann does not present the possibility that access points might not have reliable communications with the broader network that they access.

Claim 3

Strictly for clarity, claim 3 has been amended to more clearly define that processing a message element as an independent message includes all the steps associated with the processing of a message as defined in claim 1. Therefore, each decomposed message element is assigned a separate prioritization value, and transmitted independently to a receiving node, where the transmission order of all messages (including each decomposed message element treated separately) is determined by these prioritization values.

Claim 3, as amended, additionally recites "the step of decomposing messages into message elements at said sending node, and then processing each said message element as an independent message with a separate prioritization value." Horstmann does not do this. Horstmann extracts message elements (such as the sender's domain name) for the limited purpose of establishing a priority value for the whole message. This is conventional message filtering, wherein delivery of a message is subject to rules utilizing information extracted from message elements. Once Horstmann assigns a priority value to a message, the original message is thereafter processed and

transmitted as a single message (albeit perhaps truncated or modified in accordance with processing rules). While Horstmann may extract message elements, Horstmann does not process these message elements as independent messages, nor does Horstmann assign separate prioritization values to such newly independent messages (all obtained from a single incoming message) establishing their relative order of transmission through the data network (between themselves and in comparison to other messages).

Claims 3, and claims 4 and 5 which are dependent to 3, relate particularly to the portion of the patent application in paragraphs 126, 127 and 130-131. These sections indicate an envisioned application where a message is decomposed into a series of message elements, each assigned a distinct prioritization value, and each independently inserted into a transmission sequence (along with other data) in order of the priority assigned to that individual message fragment.

Claims 4 and 5

Claims 4 and 5 incorporate all the subject matter of claim 3 and add additional subject matter which makes them a fortiori and independently patentable over these references.

Claim 4 additionally recites that "decomposition divides messages into said message elements comprising a) a header comprising at least a sender messaging address identifier and a message subject; b) a first message section, comprising no more than a predetermined amount of data, and c) a second message section." Horstmann does not do this. Horstmann envisions striking certain message elements from a message, and thereafter delivering a single truncated message obtained from the original message. But Horstmann does not transmit, as three independent messages, the header (including at least the sender and subject), the first message section, and the second message section of the original message, where each of these three messages has a separate priority value dictating their relative order of transmission (between themselves and in comparison to other messages).

Claim 5, as amended, additionally recites that "said prioritization value depends upon the type of said message element." Horstmann does not do this. Horstmann uses the contents of message

elements to establish a single priority value for the original message (perhaps truncated or modified). Horstmann does not process each message element as an independent message with a separate prioritization value depending upon the respective type of message element in the newly independent message, wherein these prioritization values are used to establish a relative order of transmission between these newly independent messages (and other messages).

Claim 6

As presented in paragraphs 80-82 of the present application, and illustrated in Figure 1, "messaging nodes" are distinct from the portable messaging units where a user may view an incoming message. The "messaging nodes" are comparable to access points from which the user may download an incoming message. The significance of "proactive buffering" in this messaging system was presented above in relation to claim 2. Strictly for clarity, claim 6 has been amended to clearly state that the messaging nodes proactively buffer provided data.

Claim 6, as amended, states in part that "the full text of said message is proactively buffered at a set of messaging nodes that is a smaller subset of the messaging nodes where the header of said message is proactively buffered." Horstmann does not do this. Horstmann may deliver different quantities of a message to different user messaging devices (e.g. delivering full text to a laptop, and a short section to a pager), but Horstmann does not proactively buffer different amounts of data at different "access points" or (in the language of claim 6) messaging nodes.

Claim 6 relates particularly to the portion of the patent application in paragraphs 125 and 128-131. These sections indicate an envisioned application where more access points proactively buffer a message header than proactively buffer the full text of a message. This enables delivery of the full message if users attempt to download from certain expected access points when those access points are temporarily disconnected from the broader network, while also enabling the delivery of the message header if the user attempts to download from other access points when those access points are temporarily disconnected from the broader network.

Claim 7

Claim 7, as amended, additionally recites that "said limited resource comprises communications time during a single communications session between said sending node and said receiving node." Horstmann does not do this. Horstmann delays delivery of messages when no communications time is available (e.g. the receiving node is "out of contact"), and may trigger additional mail processing rules if a recipient does not reply to a delivered message within a predetermined time. But Horstmann does not selectively deliver messages in order of priority during a communications session, when communications time during that session is a limited resource.

Claim 7 relates particularly to the portion of the patent application in paragraphs 104, 124, 126 and 130-131. These sections indicate an envisioned application where communications time between the sending and receiving nodes is limited, and messages awaiting transmission are sent in declining order of priority until the available communications time is exhausted and communications are temporarily suspended between these nodes.

Claim 9

Claim 9 additionally recites that "said limited resource comprises storage capacity on said receiving node." Horstmann does not do this. Horstmann may truncate individual messages when the full text would exceed the capacities of a display terminal, and the recipient may limit charges by declining to have certain messages delivered. But Horstmann does not selectively deliver messages in order of their relative priority until the storage capacity of the receiving node is exhausted.

Claim 13

As presented in paragraphs 113-116 and 129 of the present application, a "messaging node" is

not a personal messaging unit (such as a cellphone or pager), but an access point from which any number of users can download messages. Such a "messaging node" is the receiving node of claim 13. Strictly for clarity, claim 13 has been amended to make this meaning more evident.

Claim 13, as currently amended, recites in part that "said prioritization value depends upon an association table value for relating said receiving node and a message recipient, wherein said receiving node is positively associated with a plurality of message recipients, and transmitted messages are subsequently available for download from said receiving node to a portable messaging unit." Horstmann does not do this. Horstmann may associate users with particular end-user receiving devices, such as cellphones and pagers, but he does not associate users with access points. When Horstmann transmits messages, he does not select a relative order of transmission (among messages that should be sent to a particular access point) that depends upon an association table value between the user and the access point.

Claim 14

Claim 14 additionally recites that "said prioritization value depends upon the payment of a surcharge for the express delivery of said message." Horstmann does not do this. Horstmann may condition delivery to some devices on payment of a surcharge, including devices (such as pagers) that may be expected to result in faster message reception. But for each individual receiving device, Horstmann simply makes a boolean send/no-send decision. Under Horstmann, surcharge payment may affect whether a message will be transmitted (at all) over a communications link, but it does not affect the order in which messages awaiting transmission over that link are transmitted, and hence does not affect a "prioritization value" used in selecting the order of message transmission. The concept of "express delivery" over a particular communications link is foreign to Horstmann, because Horstmann does not select an order for transmitting messages.

The Rejection of Claim 17 on Horstmann in view of Horvitz Overcome

In the last Office Action, dependent claim 17 was rejected as being unpatentable over Horstmann in view of Horvitz et al (hereinafter Horvitz) U.S. Patent 6,161,130. Applicants request reconsideration of this rejection, as now applicable to claim 17 as amended.

Strictly for clarity, claim 17 has been amended to more clearly define that the receiving node is a messaging system node from which incoming messages may be downloaded, comparable to an access point. In addition, strictly for clarity, claim 17 has been amended to more clearly define that "probability" relates to where the user will attempt to download any messages (i.e. a probability measure of access location), not whether the user will want to download a specific message (i.e. a probability measure of interest in a message). The usage of this probability metric in the applicants' invention may be seen in paragraphs 125 and 128 of the present application. As currently amended, claim 17 recites in part that "said prioritization value depends upon the predicted probability based upon prior behavior that said recipient will request the download of any incoming messages via said receiving node to a portable messaging unit."

If Horvitz and Horstmann were combined, claim 17 as amended would still have novel and unobvious physical features over the proposed combination. Horvitz, like Horstmann, calculates a priority value or score for determining whether the recipient wants a specific message delivered, and if so, what delivery methods to use. Horvitz describes what amounts to a spam filter, predicting whether the recipient will want to actually receive a particular message. Horvitz and Horstmann are both dedicated to evaluating individual messages and selecting appropriate rules respecting delivery of the message. Neither Horvitz nor Horstmann predicts whether a recipient will seek to download at least some pending messages from a particular access point. Indeed, the question is unrelated to the contents of particular messages, since it is fundamentally a question about what communications path the user selects for receiving any messages. Therefore, the present invention as defined by claim 17 would have novel and unobvious features even in light of the proposed combination of Horvitz and Horstmann.

New Claim 21

New claim 21 incorporates all the subject matter of claim 1, and additionally recites that "transmitted messages are subsequently available for download from said receiving node to a portable messaging unit."

Claim 21 relates particularly to the portion of the portion of the patent application in paragraph 115. As indicated in that section, an envisioned application involves downloading messages from a messaging node to a portable messaging unit. As indicated in paragraph 124, a receiving node for receiving messages in order of priority may be a messaging node.

New Claim 22

New claim 22 incorporates all the subject matter of claim 1, and additionally recites that "transmitted messages are subsequently available to the message recipient on a publicly accessible computer at said receiving node."

Claim 22 relates particularly to the portion of the patent application in paragraph 179. As indicated in that section, an envisioned application involves a user receiving messages on a publicly available computer at a messaging node. As indicated in paragraph 124, a receiving node for receiving messages in order of priority may be a messaging node.

New Claim 23

New claim 23 incorporates all the subject matter of claim 1, and additionally recites "the step of transmitting at least one unsent message awaiting delivery at the time of resource exhaustion during a subsequent communications session between said sending node and said receiving node."

Claim 23 relates particularly to the portion of the patent application in paragraph 126. As indicated in that section, lower priority messages may be transmitted during a subsequent

communications session if not all messages awaiting transmission can be sent during a first communications session due to exhaustion of a limited resource in the data network.

New Claim 24

New claim 24 incorporates all the subject matter of claim 1, and additionally recites "the steps of proactively buffering said selected messages at said receiving node, temporarily disconnecting the communications link between said sending node and said receiving node, and while this communications link is disconnected, establishing a communications link between said receiving node and a portable messaging unit and transmitting proactively buffered messages from said receiving node to said portable messaging unit."

Claim 24 relates particularly to the portion of the patent application in paragraphs 98, 115, 122, 124 and 126. As indicated in paragraphs 98, 124 and 126, the communications link between the sending and receiving nodes may become temporarily disconnected. As indicated in paragraph 124, a receiving node for receiving messages in order of priority may be a messaging node. As indicated in paragraph 122, proactive buffering of messages at messaging nodes makes these messages available at these nodes when the communications link between this node and the rest of the network is disconnected. As indicated in paragraph 115, such messages may be downloaded by a portable messaging unit from the messaging node. It is evident that these messages may be downloaded from the messaging node to a portable messaging unit while this messaging node is disconnected from the rest of the network.

New Claim 25

New claim 25 incorporates all the subject matter of claim 1, and additionally recites that "messages for a plurality of users are proactively buffered at said receiving node, and the step of transmitting proactively buffered messages to said portable messaging unit comprises only transmitting messages for a single first user."

As indicated in paragraph 107, receiving nodes (such as messaging nodes) may serve many users. As indicated in paragraphs 82 and 119, individual users may operate separate portable messaging units. This is also evident from paragraph 84, where a plurality of docking ports are made available for separate users to download messages to separate portable messaging units. It is evident that downloading to a portable messaging unit may be limited to messages intended for a single first user.

New Claim 26

New claim 26 incorporates all the subject matter of claim 25, and additionally recites "the steps of disconnecting the communications link between said receiving node and said portable messaging unit, and while the communications link between said sending node and receiving node remains disconnected, establishing a communications link between said receiving node and a second portable messaging unit and transmitting proactively buffered messages for a second user to said second portable messaging unit."

From the discussion presented regarding claim 25, it is evident that the present invention may be used to sequentially download proactively buffered messages for two separate users to separate portable messaging units, and that this may be done while the link between this messaging unit or access point and the rest of the network is disconnected.

New Claim 27

Claim 27 is a newly written independent claim, reciting "A method for the optimization of a messaging system comprising a sending node and at least one messaging node, comprising the steps of

a) assigning messages awaiting transmission to a messaging node a prioritization value at said sending node;

b) establishing a communications link between said sending node and said messaging node;

c) transmitting messages awaiting transmission from said sending node to said messaging node, in order of said prioritization value of said messages, where said first communications link is broken before all messages awaiting delivery have been transmitted, and

d) proactively buffering transmitted messages at said messaging node for delivery to a plurality of respective message recipients while said first communications link remains broken."

As indicated in paragraphs 130 and 131, an envisioned application involves assigning prioritization values to messages at a sending node, and transmitting these messages to a messaging node in order of priority until the communications link is broken. As indicated in paragraph 98, this link may be intermittent, so the link may need to be established prior to transmission. As indicated in paragraph 107, messaging nodes may serve many users, so transmitted messages may be addressed to a plurality of respective message recipients. As indicated in paragraph 122, proactive buffering of messages at messaging nodes makes these messages available at these nodes when the communications link between this node and the rest of the network is disconnected.

New Claim 28

New claim 28 incorporates all the subject matter of claim 27, and additionally recites that "said messaging system further comprises at least two portable messaging units, further comprising the steps of establishing a communications link between said messaging node and a first portable messaging unit while said first communications link between said sending node and said messaging node remains broken; transmitting proactively buffered messages for a first user to said first portable messaging unit; disconnecting the communications link between said messaging node and said first portable messaging unit; establishing a communications link between said messaging node and a second portable messaging unit while said communications link between said sending node and said messaging node remains broken; transmitting proactively buffered messages for a second user to said first portable messaging unit; disconnecting the communications link between said messaging node and said second portable
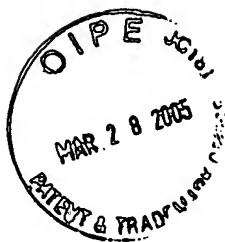
messaging unit; subsequently re-establishing said first communications link between said sending node and said messaging node, and transmitting at least some messages from said sending node to said messaging node that were awaiting delivery when said first communications link was previously broken."

As indicated in paragraph 107, messaging nodes may serve many users. As indicated in paragraphs 82 and 119, individual users may operate separate portable messaging units. This is also evident from paragraph 84, where a plurality of docking ports are made available for separate users to download messages to separate portable messaging units. It is evident that downloading to a portable messaging unit may be limited to messages intended for a specific user, and that multiple users may connect to a messaging node, download messages and disconnect while the link between this messaging unit or access point and the rest of the network remains disconnected.

New Claim 29

New claim 29 incorporates all the subject matter of claim 28, and additionally recites that "said messaging system further comprises a plurality of messaging nodes, and further comprising the steps of transmitting information from said messaging node to said sending node identifying a delivered message transmitted to a portable messaging unit via said messaging node; and transmitting from said sending node to at least one other messaging node a command to delete said delivered message from its proactive buffer."

Claim 29 relates particularly to the portion of the patent application in paragraphs 133-134. In an envisioned application, when a message is delivered from a messaging node to a user, that messaging node may send communications to other messaging nodes indicating that this specific message has been successfully delivered, and that the message may therefore be deleted from any other messaging nodes where it is proactively buffered.

CONCLUSION

For all the above reasons, Applicants submit that the specification and claims are now in proper form, and that the claims all define patentability over the prior art. Therefore they submit that this application is now in condition for allowance, which action they respectfully submit.

Conditional Request for Constructive Assistance

Applicants have amended the claims of this application so that they are proper, definite, and define novel structure which is unobvious. If, for any reason this application is not believed to be in full condition for allowance, applicants respectfully request the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. § 2173.02 and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

(signature) 3 / 22 / 2005

Terence Sean Sullivan

(signature) 3/22/05

David Holbrook

(signature) 3/24/2005

Clifford Lardin